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Invention: Method and Apparatus for A Cable TV Server

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**FILED BY USPTO ELECTRONIC FILING SYSTEM**

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**RESPONSE**

Dear Sir:

In response to the Office Action dated December 5, 2007, Applicant submits the following amendments and remarks.

**A Listing of Claims** begins on page 2 of this paper.

**Remarks/Arguments** begins on page 14.

**Amendments to Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims**

1. (Currently Amended) A television headend for delivery of television channels to a plurality of ~~subscriber~~ televisions and comprising:
  - a web content server in communication with the television headend and including:
    - a browser application including at least one instance of the browser application displaying a web page;
    - an image capture module coupled to the at least one instance of the browser application to capture successive images of the web page displayed thereby; and
    - an image compressor to compress the successive images captured by the image capture module from the at least one instance of the browser application for delivery as a television channel that is separately selectable at any of the plurality of ~~subscriber~~ televisions ~~to permit simultaneous provide and is synchronously viewing viewable on~~ ~~subscriber~~ televisions at which the television channel is selected.
2. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:
  - setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and a reload interval defining for each instance a corresponding interval for reloading a web page identified by the starting URL;
  - a generator coupled to the setup records and configured to generate a corresponding browser instance from each setup record including a loading of a web page identified by the starting URL in the corresponding setup record; and
  - a controller coupled to the setup records and to each browser instance generated by the generator to control the reload interval for each browser instance to conform with the reload interval in the corresponding setup record.

3. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:

setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and an image capture interval for converting web pages displayed by each instance of the browser application to a corresponding succession of images displayed on the corresponding television channel;

a generator coupled to the setup records and configured to generate a corresponding browser instance from each setup record including a loading of a web page identified by the starting URL in the corresponding setup record; and

a controller coupled to the setup records and the image capture module and configured to control the image capture interval of the image capture module to conform with the image capture interval in the corresponding setup record.

4. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:

setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and a channel bitrate parameter corresponding with at least one of an image quality and refresh frequency of the succession of images compressed by the image compressor from a corresponding instance of the browser application;

a generator coupled to the setup records and configured to generate a corresponding browser instance from each setup record including a loading of a web page identified by the starting URL, in the corresponding setup record; and

a controller coupled to the setup records and the image compressor module and configured to control at least one of the image quality and the refresh frequency of the succession of images compressed by the image compressor to conform with the channel bitrate parameter in the corresponding setup record.

5. (Previously Presented) The television headend of claim 1 wherein the web page displayed by the at least one instance of the browser application includes:
  - at least one frame portion; and
  - a script which identifies a set of web pages and a corresponding upload interval for each of the web pages in the set; and the script executable by the at least one instance of the browser application to sequentially upload each of the web pages identified in the set into the at least one frame portion for capture by the image capture module and subsequent display on the corresponding selectable television channel.
6. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:
  - the browser application includes a first browser instance and a second browser instance each displaying a corresponding web page; and
  - a multiplexer with inputs coupled to the image compressor and an output for multiplexing corresponding images from the first and second browser instances onto a single analog television channel as discrete digital television channels.
7. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:
  - a database;
  - an administrative module providing graphical user interfaces to input and update setup records in the database with each setup record including at least: a starting uniform resource locator (URL), a television channel identifier and a reload interval defining for each instance a corresponding interval for reloading a web page identified by the starting URL; and
  - a controller coupled to the database and to each browser instance generated by a generator to control the reload interval for each browser instance to conform with the reload interval in the corresponding setup record in the database.

8. (Previously Presented) The television headend of claim 1, wherein the web content server further comprises:

a database;

an administrative module providing graphical user interfaces to input and update setup records in the database with each setup record including at least: a starting uniform resource locator (URL), a television channel identifier and an image capture interval for converting web pages displayed by each instance of the browser application to a corresponding succession of images displayed on a television channel; and

a controller coupled to the database and the image capture module and configured to control the image capture interval of the image capture module to conform with the image capture interval in each corresponding setup record in the database.

9. (Previously Presented) The television headend of claim 1, wherein web content server further comprises:

a database;

an administrative module providing graphical user interfaces to input and update setup records in the database with each setup record including at least: a starting uniform resource locator (URL), a television channel identifier and a channel bitrate parameter corresponding with at least one of an image quality and a refresh frequency of the succession of images compressed by the image compressor from a corresponding instance of the browser application; and

a controller coupled to the database and the image compressor module and configured to control at least one of the image quality and the refresh frequency of the succession of images compressed by the image compressor to conform with the channel bitrate parameter in the corresponding setup record in the database.

10. (Currently Amended) A method for delivery of television channels from a television headend to a plurality of ~~subscriber~~ televisions and the method comprising:

generating at least one instance of a browser application displaying a web page;  
capturing a succession of images of the web page displayed by the at least one instance of the browser application generated in the generating act;

compressing the successive images captured in the capturing act; and  
delivering the succession of images compressed in the compressing act as a  
television channel that is separately selectable at any of the plurality of ~~subscriber~~  
~~televisions so as to be simultaneously viewable and is synchronously viewable~~ on a  
plurality of the ~~subscriber~~ televisions.

11. (Previously Presented) The method of claim 10, further comprising:

providing setup records each corresponding with an instance of the browser  
application and each including parameters corresponding with at least: a starting uniform  
resource locator (URL), a television channel identifier of a corresponding television  
channel and a reload interval defining for each instance a corresponding interval for  
reloading a web page identified by the starting URL;

generating a corresponding browser instance from each setup record provided in  
the providing act; and

reloading the web page identified by the starting URL in the corresponding setup  
record into each corresponding browser instance generated in the second generating act at  
intervals corresponding with the reload interval in the corresponding setup record  
provided in the providing act.

12. (Previously Presented) The method of claim 10, further comprising:

providing setup records each corresponding with an instance of the browser  
application and each including parameters corresponding with at least: a starting uniform  
resource locator (URL), a television channel identifier of a corresponding television  
channel and an image capture interval for converting web pages displayed by each instant  
of the browser application to a corresponding succession of images displayed on the  
corresponding television channel;

loading the web page identified by the starting URL, in the corresponding setup  
record provided in the providing act into the at least one browser instance generated in  
the generating act; and

capturing the succession of images of the web page loaded in the loading act at intervals corresponding with the reload interval in the corresponding setup record provided in the providing act.

13. (Previously Presented) The method of claim 10, further comprising:

providing setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and a channel bitrate parameter corresponding with at least one of an image quality and refresh frequency of the succession of images compressed in the compressing act from a corresponding instance of the browser application generated in the generating act;

loading the web page identified by the starting URL in the corresponding setup record provided in the providing act into the at least one browser instance generated in the generating act; and

compressing the successive images captured in the capturing act to an image quality and/or at a refresh frequency which conforms with the corresponding setup record provided in the providing act.

14. (Previously Presented) The method of claim 10, wherein the generating and delivering acts further comprise:

generating a first browser instance and a second browser instance each displaying a corresponding web page; and

multiplexing each corresponding succession of images compressed in the compressing act from the first and second browser instances generated in the generating act onto a single analog television channel as discrete digital television channels.

15. (Previously Presented) The method of claim 10, further comprising:

managing setup records via graphical user interface forms with each setup record including at least: a starting uniform resource locator (URL), a television channel

identifier and a reload interval defining for each instance of the browser application a corresponding interval for reloading a web page identified by the starting URL; storing the setup records managed in the managing act in a database; generating a corresponding browser instance from each setup record stored in the storing act; and  
reloading the web page identified by the starting URL in the corresponding setup record into each corresponding browser instance generated in the second generating act: at intervals corresponding with the reload interval in the corresponding setup record stored in the act.

16. (Previously Presented) The method of claim 10, further comprising:

managing setup records via graphical user interface forms with each setup record including at least: a starting uniform resource locator (URL), a television channel identifier and an image capture interval for converting web pages displayed by each instance of the browser application to a corresponding succession of images displayed on the corresponding television channel;

storing the setup records managed in the managing act in a database;  
generating a corresponding browser instance from each setup record stored in the storing act; and  
capturing the succession of images of the web page loaded in the loading act at intervals corresponding with the capture interval in the corresponding setup record stored in the storing act.

17. (Currently Amended) A means for delivery of television channels from a television headend to a plurality of ~~subscriber~~ televisions and the means for delivery comprising:

means for generating at least one instance of a browser application displaying a web page;  
means for capturing a succession of images of the web page displayed by the at least one instance of the browser application generated by the means for generating;  
means for compressing the successive images captured by the means for capturing; and

means for delivering the succession of images compressed by the means for compressing as a television channel that is separately selectable at any of the plurality of subscriber televisions so as to be simultaneously and is synchronously viewable on a plurality of the subscriber televisions.

18. (Currently Amended) The means for delivery of claim 17, further comprising:

means for providing setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and a reload interval defining for each instance a corresponding interval for reloading a web page identified by the starting URL;

means for generating a corresponding browser instance from each setup record provided by the means for providing; and

means for reloading the web page identified by the starting URL in the corresponding setup record into each corresponding browser instance generated by the second means for generating at intervals corresponding with the reload interval in the corresponding setup record provided by the means for providing.

19. (Previously Presented) The means for delivery of claim 17, further comprising:

means for providing setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and an image capture interval for converting web pages displayed by each instant of the browser application to a corresponding succession of images displayed on the corresponding television channel;

means for loading the web page identified by the starting URL in the corresponding setup record provided by the means for providing into the at least one browser instance generated by the means for generating; and

means for capturing the succession of images of the web page loaded by the means for loading at intervals corresponding with the reload interval in the corresponding setup record provided by the means for providing.

20. (Previously Presented) The means for delivery of claim 17, further comprising:

means for providing setup records each corresponding with an instance of the browser application and each including parameters corresponding with at least: a starting uniform resource locator (URL), a television channel identifier of a corresponding television channel and a channel bitrate parameter corresponding with at least one of an image quality and refresh frequency of the succession of images compressed by the means for compressing from a corresponding instance of the browser application generated by the means for generating;

means for loading the web page identified by the starting URL in the corresponding setup record provided by the means for providing into the at least one browser instance generated by the means for generating; and

means for compressing the successive images captured by the means for capturing to an image quality and/or at a refresh frequency which conform with the corresponding setup record provided by the means for providing.

21. (Previously Presented) The means for generating and the means for delivery of claim 18, further comprising:

means for generating a first browser instance and a second browser instance each displaying a corresponding web page; and

means for multiplexing each corresponding succession of images compressed by the means for compressing from the first and second browser instance generated by the means for generating onto a single analog television channel as discrete digital television channels.

22. (Previously Presented) The means for delivery of claim 17, further comprising:

means for managing setup records via graphical user interface forms with each setup record including at least: a starting uniform resource locator (URL) a television channel identifier and a reload interval defining for each instance of the browser application a corresponding interval for reloading a web page identified by the starting URL;

means for storing the setup records managed by the means for managing in a database;

means for generating a corresponding browser instance from each setup record stored by the means for storing; and

means for reloading the web page identified by the starting URL in the corresponding setup record into each corresponding browser instance generated by the second means for generating; at intervals corresponding with the reload interval in the corresponding setup record stored by the means for storing.

23. (Previously Presented) The means for delivery of claim 17, further comprising:

means for managing setup records via graphical user interface forms with each setup record including at least: a starting uniform resource locator (URL), a television channel identifier and an image capture interval for converting web pages displayed by each instance of the browser application to a corresponding succession of images displayed on the corresponding television channel;

means for storing the setup records managed by the means for managing in a database;

means for generating a corresponding browser instance from each setup record stored by the means for storing; and

means for capturing the succession of images of the web page loaded by the means for loading at intervals corresponding with the capture interval in the corresponding setup record stored by the means for storing.

24.( Previously Presented) The television of claim 1 headend wherein the web page includes streaming video element and wherein the successive images of the web page produce a video stream making the streaming video element viewable on any ~~subscriber~~ television at which the television channel is selected.

25.( Currently Amended) The method of claim 10 wherein the web page includes a video streaming element and wherein compressing produces a video stream making the video

streaming element viewable on any ~~subscriber~~ television at which the television channel is selected.

26.(Currently Amended) In communication with a television distribution facility for delivery of television channels to a plurality of ~~subscriber~~ televisions, a web content server comprising:

a browser application controlled so as to cycle through a carousel of web pages; and

an image compressor arranged to compress at least one image of each web page in the carousel for delivering the carousel of compressed images from the television distribution facility as a television channel separately selectable at any of the plurality of ~~subscriber~~ televisions for viewing a slide show of web pages so as to permit simultaneous synchronous viewing of the slide show on a plurality of the ~~subscriber~~ televisions.

27.( Previously Presented) The web content server of claim 26 wherein the carousel of web pages is determined by a master web page including a script which identifies the carousel of web pages and a corresponding upload interval for each of the web pages in the carousel.

28.(Currently Amended) The web content server of claim 26 further comprising an active graphical element in the at least one web page and wherein the carousel of compressed images produce a video stream making the active graphical element viewable on any ~~subscriber~~ television at which the television channel is selected.

29.(Currently Amended) In communication with a television headend for delivery of television channels to a plurality of ~~subscriber~~ televisions, a web content server comprising:

a browser application including at least two instances of the browser application each cycling through a carousel of web pages;

an image compressor arranged to compress at least one image of each web page in the carousels to form an elementary stream of compressed images for each carousel; and

a multiplexer arranged to receive the elementary streams and to output a transport stream for delivery of each carousel of images as a discrete digital television channel synchronously viewable at a plurality of the ~~subscriber~~ televisions.

30. (Previously Presented) A system comprising the television headend and web content server of claim 29 and further comprising a modulator for delivering the discrete digital television channels over an analog television channel.

31.(Previously Presented) The web content server of claim 29 wherein each carousel of web pages is determined by a master web page including a script which identifies the carousel of web pages and a corresponding upload interval for each of the web pages in the carousel.

32.(Currently Amended) The web content server of claim 29 further comprising an active graphical element in at least one of the web pages and wherein the transport stream includes a video stream making the active graphical element viewable on any ~~subscriber~~ television at which the corresponding discrete digital television channel is selected.

## REMARKS/ARGUMENTS

Claims 1-6, 10, 17, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang et al. (6,266,369) in view of Field et al. (6,018,764). Claims 2-4, 7-9, 11-13, 15, 16, and 18-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Field, and further in view of Bates et al. (5,907,681). Claim 5, 26-32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Field, and further in view of Leak et al. (6,182,072).

Claim 1 is directed to a television headend which delivers webpage images on television channels to a plurality of televisions. As amended, the claim requires captured successive web page images to be compressed and delivered “as a television channel that is separately selectable at any of the plurality of televisions and is synchronously viewable on televisions at which the television channel is selected.” As with typical broadcast television channels, any viewer tuning into a particular channel will view that channel’s image content synchronously with all other viewers tuned to the particular channel.

The examiner argues that Field teaches delivery of web content over television channels that are separately selectable to any of the plurality of televisions to permit simultaneous viewing. Although Field may teach simultaneously delivering HTML data to a plurality of televisions, Field does not teach delivering compressed successive images as a television channel that is **synchronously viewable** on televisions as required by claim 1.

Field discloses a method of mapping URLs, or web pages, to broadcast addresses in a television signal. The HTML data for each webpage and an associated mapping table are multiplexed with standard programming data. *Col 5, lines 15-17.* The HTML data for each web page is broadcast to every viewer. *Col 5, lines 35-37, col. 6, lines 36-39.* In an analog embodiment, the frequency, or channel, is the broadcast address. *Col. 6, lines 36-39.* Thus, arguably, Field simultaneously delivers HTML data to a number of televisions on separately selectable channels. However, before the HTML data is viewed, it must be downloaded and further processed by a browser-like application. As Field explains, when a user requests to view a particular webpage, a processor in the set-

top box looks up the corresponding broadcast address for the webpage and sends instructions for the set top box to tune to the associated broadcast address in order to receive the requested HTML data. *Col 6, lines 36-39, col. 7, lines 44-54.* The HTML data is then sent to a HTML processor at the set-top box. The HTML processor functions like a Web browser to create a graphical display that can be displayed on a television screen. *Col 7, line 60 – col. 8, line 4.*

Thus, in the method of Field, it appears that every set-top box is receiving HTML data simultaneously, but the set-top boxes are not displaying the content synchronously because it is in the form of HTML requiring further processing rather than television images. For example, when a first user requests to view a webpage with an animation, the HTML processor receives the HTML data from the appropriate channel and begins the animation. A few moments later, a second user requests the same webpage. The second user's HTML processor receives the HTML data and begins the animation, but the second user's animation is not synchronous with the first user's animation because the second animation started a few moments later. Thus, the two users are not synchronously viewing the same television channel as required by claim 1.

Wang also does not teach synchronously viewing the same television channel as required by claim 1. Wang discloses an interactive system for browsing web content on a television. Wang teaches two-way connectivity in which a user can communicate with a browser application in the headend. The user is thus controlling the internet information that will be processed and displayed. The image bit maps are MPEG encoded and sent to the requesting user. *Col. 1, lines 57-61.* Each user has his own interactive session and none of the viewers are synchronously viewing web pages. Therefore, as the examiner concedes, Wang fails to disclose that “the images are delivered as a television channel separately selectable to any of the plurality of user televisions to permit simultaneous viewing,” (or as more particularly amended, synchronous viewing). *Office Action, page 3.*

Neither Wang nor Field teach delivering compressed successive images “as a television channel” that is **synchronously viewable** on televisions. For this reason, claim 1 should be allowed.

Claim 1 is not obvious over Wang and Field, additionally, because even if combined they do not teach Applicants' invention. Both Wang and Field teach providing the user with an interactive experience for viewing web page content. In Wang, the interactive experience is accomplished by using two-way connectivity between the user and headend. *Col 9, lines 28-37.* For example, in Wang, when the user scrolls a webpage the scrolling commands are sent to the headend, the appropriate portions of the webpage are MPEG encoded at the headend, and sent back to the user's set-top. *See Fig. 3, col. 6, line 60 – col. 7, line 14.* . In order to maintain backwards compatibility with existing one-way communication systems, the examiner argues that one of ordinary skill may look further to the teachings of Field.

Field creates the "look and feel of a two-way internet connection" by downloading HTML data locally to the set-top box. *Col. 7, lines 60-63.* Thus, the user can scroll and interact with the webpage locally without sending commands to the headend. *See col. 7, lines 66-67.* Thus, instead of MPEG as taught by Wang, the combination of Wang and Field suggests a system in which HTML data is provided in response to user requests. The HTML data overcomes the compatibility with one-way systems because it can be accessed and interacted with locally. The combination of Wang and Field does not disclose or suggest delivering successive images from a browser as a television channel synchronously viewable on televisions at which the television channel is selected.

Given that both references lack the delivery of compressed successive images from a browser as a television channel synchronously viewable on televisions, it becomes clear that the Examiner's attempt to combine aspects of these references in a new and uncharted manner arises solely from resort to the teachings of Applicants. The Examiner must be careful to avoid the insidious effects of hindsight. MPEP 2141.01. The Applicants' claims may not serve as the blueprint for combining elements of the prior art. It is seen from the above that at the time of the invention, the teachings of Wang and Field, even if combined, do not disclose Applicants' invention as claimed.

Therefore, claim 1 is allowable over the combination of Wang and Field because the combination does not teach the system of claim 1 with all of its elements and limitations. Bates and Leak also do not teach delivering compressed successive images

“as a television channel” that is **synchronously viewable** on televisions. Thus, they do not overcome the deficiencies of the combination of Wang and Field. Therefore, for the reason recited above with respect to claim 1, all remaining claims are allowable for the same reasons.

The applicants request issuance of a notice of allowance. To further expedite prosecution, the Applicants request that the examiner call Jakub Michna at 617-443-9292 if he has any further questions. If additional fees are required, please charge deposit account number 19-4972.

Respectfully submitted,

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